
Matrix regulation of tumor-initiating cells.

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Public Summary:

The recognition that the progression of many tumors may be driven by specific subpopulations of cells with stem/progenitor-like properties (tumor-initiating cells or TICs, a.k.a. cancer stem cells) represents an important recent paradigm shift in cancer biology and therapeutics. TICs in solid tissues are expected to interface with the extracellular matrix (ECM), which can strongly influence cell behavior through a variety of biochemical and biophysical mechanisms. Understanding ECM regulation of TIC behavior is important for developing strategies to isolate, expand, and characterize TICs in a laboratory setting and for understanding the roles ECM-based inputs may play in disease progression and therapy. In this chapter, we discuss how the ECM regulates TICs, starting with a brief overview of TIC biology, isolation, and characterization, molecular mechanisms through which TICs may be regulated by ECM-based signals, and the potential importance of these signals to TIC-driven tumor progression and metastasis.

Scientific Abstract:

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